Show that $3\sin^2\theta - \cos\theta + 1 = 0$ values for θ ; $0 \le \theta \le 360°$

<u>Solution</u>

We know that, $\sin^2\theta + \cos^2\theta = 1$

$\sin^2\theta = 1 - \cos^2\theta$

$3(1 - \cos^2\theta) - \cos\theta + 1 = 0$

$3 - 3\cos^2\theta - \cos\theta + 1 = 0$

$-3\cos^2\theta - \cos\theta + 4 = 0$

$-3\cos^2\theta - \cos\theta = -4$

divide by negative sign

$\dfrac{-3\cos^2\theta}{-1} + \dfrac{\cos\theta}{-1} = \dfrac{-4}{-1}$

$3\cos^2\theta + \cos\theta = 4$

$3(\cos)^2\theta + \cos\theta = 4$

Let cos be x, then replace

$3x^2 + x = 4$

$3x^2 + x - 4 = 0$

prd = −12

sum = 1

values = (-3 4)

$3x^2 - 3x + 4x - 4 = 0$

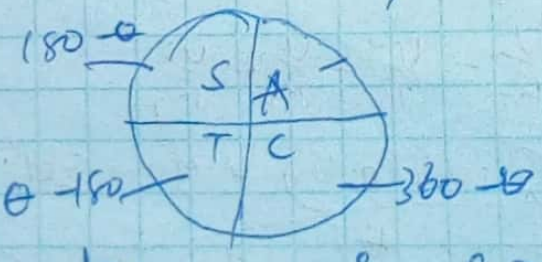
$3x(x-1) + 4(x-1) = 0$

$(3x+4)(x-1) = 0$

$x = -4$, or 1

for cos x when cos θ

$\cos^{-1} 1 = 0$,



values, 0° and 360°